CLAIMS

1. A sprinkler, comprising:

an outer housing having a lower end connectable to a source of pressurized water;

a riser vertically reciprocable along a vertical axis within the outer housing between extended and retracted positions when the source of pressurized water is turned ON and OFF;

a nozzle mounted at an upper end of the riser for rotation about the vertical axis;

a turbine mounted for rotation inside the riser; and

a drive mechanism mounted within the riser and connecting the turbine to the nozzle so that when the source of pressurized water is turned ON the resulting rotation of the turbine by the pressurized water will rotate the nozzle, the drive mechanism including a reversing mechanism for causing the nozzle to rotate between a pair of arc limits, the reversing mechanism including an over-center mechanism for shifting the reversing mechanism, the over-center mechanism including a first lever and a second lever held together by a spring, the first lever and the second lever being pivotable relative to each other to shift the reversing mechanism.

2. The sprinkler of Claim 1 and further comprising a mechanism that allows a least one of the arc limits to be adjusted.

3. The sprinkler of Claim 1 wherein the reversing mechanism includes a clutch and a yoke that is reciprocable to move the clutch between first and second positions for reversing a direction of rotation of the nozzle, and a link arm for connecting the clutch to one end of the first lever so that pivoting motion of the first lever will move the link arm to move the clutch between the first and second positions.

4. The sprinkler of Claim 1 wherein a plurality of engaging portions of the first and second levers that engage each other, and a pair of spring attachment points are selected to ensure that the levers will positively rotate between two predetermined opposite end limit configurations

with minimal chance of stalling at a third configuration intermediate the two end limit configurations.

5. The sprinkler of Claim 4 wherein the first lever is formed with a pair of trunnions that engage corresponding bearing surfaces formed on the second levers.

6. The sprinkler of Claim 3 wherein the reversing mechanism further includes a link arm connecting the yoke and one of the first and second levers.

7. The sprinkler of Claim 4 wherein the first lever is formed with a plurality of flat angled surfaces that engage a plurality of second flat surfaces of the second arm to define the two end limit configurations of the levers.

8. The sprinkler of Claim 1 wherein the reversing mechanism includes a link arm coupled to one of the levers for linear movement.

9. The sprinkler of Claim 1 wherein the first and second levers are each made of a pair of spaced apart, parallel side pieces.

10. The sprinkler of Claim 1 wherein each lever has a post that extends between the side pieces for holding a corresponding end of a coil spring.

11. An over-center mechanism for shifting a reversing mechanism of a rotor type sprinkler, comprising:

a first lever;

a second lever;

a spring having a first end connected to the first lever at a first attachment point and a second end connected to the second lever at a second attachment point to hold the levers together in mating relation; and

the first and second levers being configured, and the spring attachment points being located, so that the levers will positively rotate between two predetermined opposite end limit configurations with minimal chance of stalling at a third configuration intermediate the two end limit configurations.

12. The over-center mechanism of Claim 11 wherein the spring is a coil spring.

13. The over-center mechanism of Claim 11 wherein the first and second levers are each made of a pair of spaced apart, parallel side pieces.

14. The over-center mechanism of Claim 11 wherein the first and second levers are each made of a pair of spaced apart, parallel side pieces and the spring is a coil spring having a first end connected to a first post extending between the side pieces of the first lever and a second end connected to a second post extending between the side pieces of the second lever.

15. The over-center mechanism of Claim 11 wherein the first lever is formed with a pair of trunnions that engage corresponding bearing surfaces formed on the second levers.

16. The over-center mechanism of Claim 11 wherein the second lever is formed with an actuating arm.

17. The over-center mechanism of Claim 14 wherein the side pieces of the first lever have an arrow-head shape and the side pieces of the second lever have a triangular shape.

18. The over-center mechanism of Claim 15 wherein the bearing surfaces have C-shaped ends.

19. The over-center mechanism of Claim 11 wherein the levers are shaped and configured, and the first and second spring attachment points are located, so that the first and

second levers are biased toward one or the other of the end limit configurations by the contraction force of the spring.

20. A sprinkler, comprising:

an outer housing having a lower end connectable to a source of pressurized water;

a riser vertically reciprocable along a vertical axis within the outer housing between extended and retracted positions when the source of pressurized water is turned ON and OFF;

a nozzle mounted at an upper end of the riser for rotation about the vertical axis;

a turbine mounted for rotation inside the riser; and

a drive mechanism mounted within the riser and connecting the turbine to the nozzle so that when the source of pressurized water is turned ON the resulting rotation of the turbine by the pressurized water will rotate the nozzle, the drive mechanism including a reversing mechanism for causing the nozzle to rotate between a pair of arc limits, the reversing mechanism including an over-center mechanism for shifting the reversing mechanism, the over-center mechanism including a first lever and a second lever held together by a coil spring having a first end connected to a first attachment point on the first lever and a second end connected to a second attachment point on the second lever, the first lever and the second lever being pivotable relative to each other to shift the reversing mechanism, and the first and second levers being configured, and the spring attachment points being located, so that the levers will be biased toward one or the other of two predetermined opposite end limit configurations with minimal chance of stalling at a third configuration intermediate the two end limit configurations.